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(54) Abstract Title

TV set with means for setting audio and video outputs according to the categories of programmes selected from a programme guide

(57) A TV receiver capable of receiving a transmitted programme guide with associated categories (eg film, music) wherein the category is used to designate a setting for the audio or video outputs. The setting may have been previously chosen by the user.

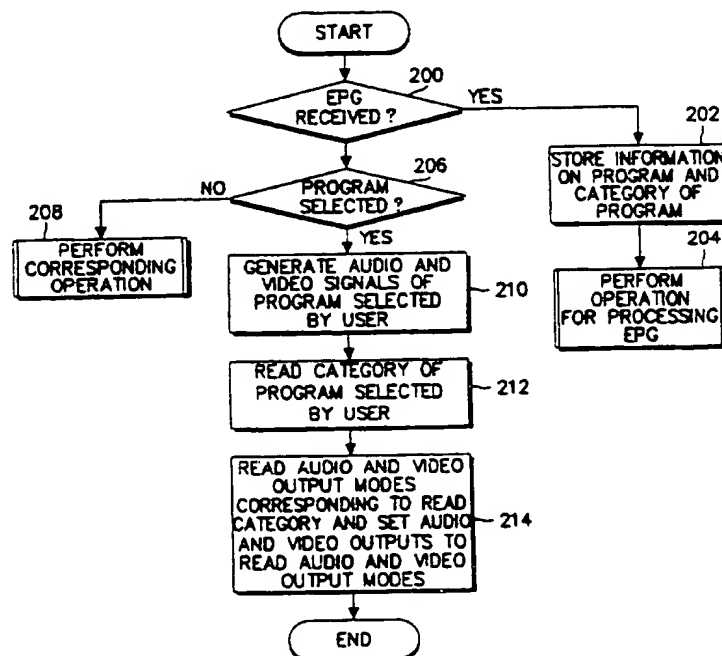


FIG. 2

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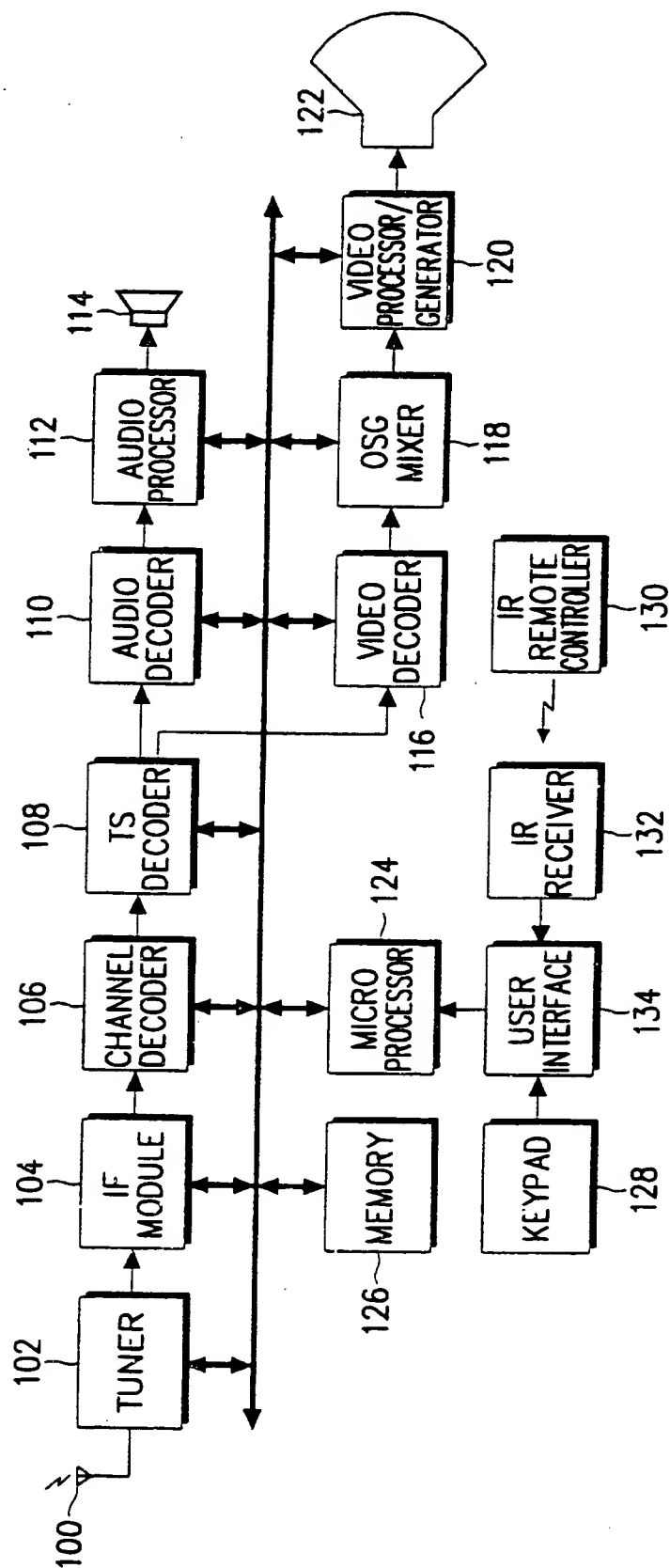
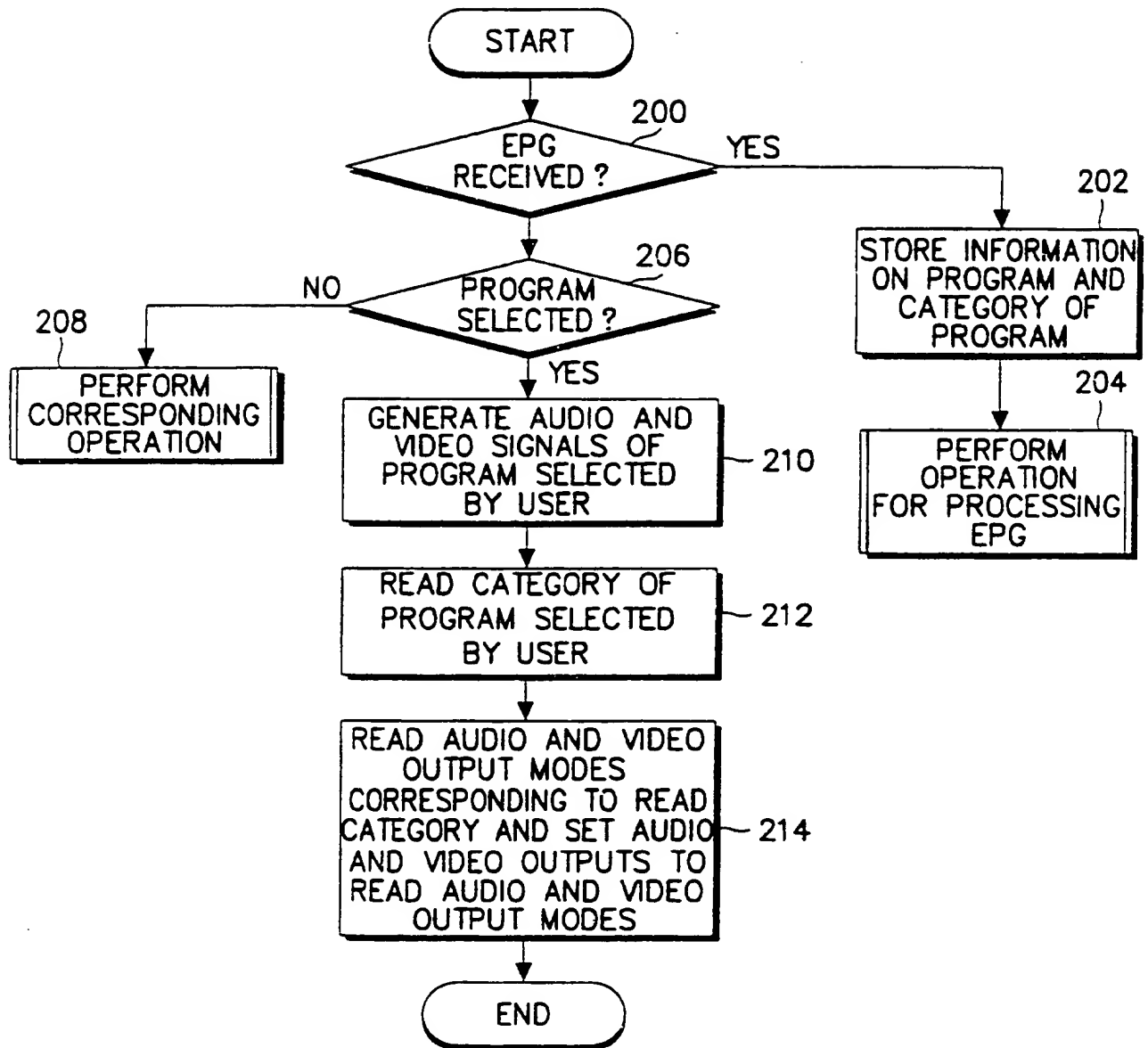


FIG. 1

*FIG. 2*

TELEVISION SET AND METHOD FOR SETTING AUDIO AND VIDEO
OUTPUTS

5 The present invention relates to a television set,
and in particular, to a method for setting audio and video
outputs of a television set.

10 A television set has a plurality of audio and video
output modes so that a user may set audio and video
outputs suitable for a viewing program. Therefore, the
user can view the program with optimal sound and image by
setting the audio and video outputs of the television set
to modes suitable for the viewing program. However, in
15 order to set the audio and video outputs to appropriate
audio and video output modes, the user must directly
manipulate a user interface of the television set, such as
a key pad or a remote controller. Consequently, it is
inconvenient to manually select the audio and video output
modes.

20

It is therefore an object of the present invention to
provide a television set and method for automatically
setting audio and video outputs to modes suitable for a
program.

25

According to a first aspect of the present invention
there is provided a method for setting audio and video
outputs in a television set for receiving and processing
a program guide including a plurality of program
30 categories, said method comprising the steps of:

storing audio and video output modes corresponding to
each of the plurality of program categories;

receiving said program guide and storing the category allocated to each program;

5 if a user selects a program, reading the category of the selected program; and

reading the audio and video output modes corresponding to the read category and selectively setting either or both of said audio and video outputs to the corresponding stored audio and video output modes.

According to a second aspect of the present invention there is provided a television set for setting audio and video outputs, comprising:

15 a receiver for receiving programs and a program guide including program categories;

an output part for processing audio and video signals of the received program and generating said audio and video outputs;

20 a memory for storing the category of each program received and audio and video output modes corresponding to the program categories; and

25 a controller for controlling said output part so as to selectively set either or both of said audio and video outputs to the audio and video output modes corresponding to the category of the received program.

30 For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 is a block diagram of a television set to which the present invention is applicable; and

5 Figure 2 is a flow chart showing a process for setting audio and video outputs according to a preferred embodiment of the present invention.

10 In the following description, numerous specific details are set forth to provide a more thorough understanding of the present invention. It will be apparent, however, to one skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known functions or constructions which may obscure the invention in
15 unnecessary detail are not described in detail.

If a broadcasting station broadcasts information concerning a program to be broadcasted and a category of the program, the television set of the preferred
20 embodiment receives this information for the program and the category of the program and stores the received information in a memory. If the user selects the program, the television set reads the information on the category of the selected program and sets the audio and video
25 outputs to appropriate modes which are previously set.

A digital broadcasting such as an HDTV (High Definition Television) provides a program guide so that the user can know the program to be broadcasted.
30 Especially, the U.S. ATSC (Advanced Television System Committee) standard specifies an EPG (Electronic Program Guide) including the information on the program to be broadcasted and the category of the program. Therefore, if the preferred embodiment is applied to the HDTV, there

is no need to additionally transmit the information on the program to be broadcasted and the category of the program.

Figure 1 is a block diagram of the HDTV to which the preferred embodiment is applied. A tuner 102 receives a broadcasting signal through an antenna 100 and selects a radio frequency (RF) channel according to the control of a microprocessor 124. Further, the tuner 102 generates an intermediate frequency (IF) signal of the selected channel. An IF module 104 converts the IF signal generated from the tuner 102 into a baseband signal. A channel decoder 106 decodes the baseband signal generated from the IF module 104 to reproduce a transport stream (TS). A TS decoder 108 separates the transport stream into an audio stream, a video stream and additional data.

An audio decoder 110 receives the audio stream and restores audio data. An audio processor 112 processes the audio data and supplies the processed audio signal to a speaker 114. A video decoder 116 receives the video stream and restores video data. An OSG (On-Screen Graphic) mixer 118 mixes the video data with OSG data according to the control of the microprocessor 124. A video processor/generator 120 processes the mixed video data and supplies the processed video signal to an image receiving tube 122.

The microprocessor 124 executes a command received through a user interface 134 from a keypad 128 or an infrared (IR) remote controller 130 according to a program stored in a memory 126. The command supplied from the IR remote controller 130 is transmitted to an IR receiver 132 as an IR signal and then applied to the user interface 134. The additional data generated from the TS decoder

108 is supplied to the microprocessor 124. This additional data includes the EPG information.

5 A memory 126 includes a read only memory (ROM) for storing a program of the microprocessor 124, a random access memory (RAM) for temporarily storing data generated in the process of executing the program of the microprocessor 124, an electrically erasable and programmable read only memory (EEPROM) for storing various
10 reference data, and the like.

Figure 2 is a flow chart showing a process for setting the audio and video outputs. The microprocessor 124 checks whether the EPG is received at step 200. If
15 the EPG is received, the microprocessor 124 stores, at step 202, the information on the program and the category of the program contained in the EPG. The category of the program is classified as listed below in Table 1.

20

Table 1

25

Category	Program
0	Movie
1	Sports
2	Music
3	Drama
4	News
5	Shopping
6	Others

The information on the category of the program classified as shown in Table 1, is contained in the EPG. If the information on the program and the category of the program is stored, the microprocessor 124 performs an operation for processing the EPG at step 204.

Meanwhile, if the EPG is not received, the microprocessor 124 checks, at step 206, whether the user selects the program by use of the keypad 128 or the IR remote controller 130. If the program is not selected, the microprocessor 124 performs a corresponding operation at step 208. If the program is selected, the microprocessor 124 generates the audio and video signals of the program selected by the user at step 210. That is, the microprocessor 124 controls the tuner 102 and the TS decoder 108. The TS decoder 108 separates the transport stream into the audio and video transport streams of the program selected by the user according to the control of the microprocessor 124. The audio and video transport streams are respectively supplied to the audio decoder 110 and the video decoder 116. The audio decoder 110 restores the audio data. The audio processor 112 processes the audio data and supplies the processed audio signal to the speaker 114. On the other hand, the video decoder 116 restores the video data. The video processor/generator 120 processes the video data and supplies the processed video signal to the image receiving tube 112.

As the audio and video signals are generated, the microprocessor 124 reads, at step 212, the category of the program selected by the user from the memory 126.

Examples of the audio and video output modes corresponding to each category are listed below in Table 2.

Table 2

Category	Audio output	Video output
0	Movie mode	Movie mode
1	Movie mode	Sports mode
2	Music mode	Standard mode
3	Standard mode	Standard mode
4	Speech mode	Standard mode
5	Speech mode	Standard mode

10 As indicated in Table 2, if the category is "0", that
is, if the user selects a movie program, the audio output
is set to a movie mode emphasizing a low-pitched tone and
the video output is set to the movie mode emphasizing
contrast. If the category is "1", that is, if the user
15 selects a sports program, the audio output is set to the
movie mode emphasizing the low-pitched tone and the video
output is set to a sports mode emphasizing resolution and
contrast. If the category is "2", that is, if a music
program is selected, the audio output is set to a music
20 mode emphasizing a high-pitched tone and the low-pitched
tone and the video output is set to a standard mode. If
the category is "3", that is, if a drama program is
selected, the audio and video outputs are set to the
standard mode. If the category is "4" or "5", that is, if
25 the user selects a news or shopping program, the video
output is set to the standard mode and the audio output is
set to a speech mode which reduces the low-pitched tone
and generates a clear voice.

The table designating the audio and video output modes corresponding to each category is previously stored in the memory 126. At step 214, the microprocessor 124 reads the audio and video output modes, corresponding to the category of the program selected by the user, from the table and sets the audio and video outputs to the read audio and video output modes.

The audio processor 112 and the video processor/generator 120 adjust the audio and video outputs according to the audio and video output modes of the selected program, respectively.

As described above, the audio and video output modes are automatically set according to the category of the program. Therefore, the user can watch the television without manipulating the key pad or the remote controller. Although the audio and video output modes are automatically set, the user may newly set the audio and video output modes by manipulating the key pad or the remote controller.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly
5 stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the
10 foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any
15 method or process so disclosed.

CLAIMS

1. A method for setting audio and video outputs in a television set for receiving and processing a program guide including a plurality of program categories, said
5 method comprising the steps of:

storing audio and video output modes corresponding to each of the plurality of program categories;

10

receiving said program guide and storing the category allocated to each program;

if a user selects a program, reading the category of
15 the selected program; and

reading the audio and video output modes corresponding to the read category and selectively setting either or both of said audio and video outputs to the
20 corresponding stored audio and video output modes.

2. The method as set forth in claim 1, further comprising the step of selectively setting at least one of said audio and video outputs to other audio and video
25 output modes selected by a user.

3. The method as set forth in Claim 2, wherein said storing step comprises the step of storing audio and/or video output modes selected by a user corresponding to one
30 of the plurality of program categories.

4. The method as set forth in Claim 3, wherein said storing step comprises storing a selected one of the plurality of available audio output modes and a selected

one of a plurality of available video output modes for each one of the plurality of available program categories.

5 5. The method as set forth in Claims 3 or 4, wherein said step of selectively setting comprises receiving user selections through a key pad or infra red remote controller.

10 6. A television set adapted to perform the method as set forth in any preceding claim.

7. A television set for setting audio and video outputs, comprising:

15 a receiver for receiving programs and a program guide including program categories;

20 an output part for processing audio and video signals of the received program and generating said audio and video outputs;

25 a memory for storing the category of each program received and audio and video output modes corresponding to the program categories; and

30 a controller for controlling said output part so as to selectively set either or both of said audio and video outputs to the audio and video output modes corresponding to the category of the received program.

8. A method for setting audio and video outputs in a television set, substantially as herein before described with reference to the accompanying drawings.

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9. A television set for setting audio and video outputs, substantially as herein before described with reference to the accompanying drawings.



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Claims searched: 1-9

Examiner: D. Midgley
Date of search: 10 March 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): H3Q QCD, QLCA, QLCB, QLCX

Int Cl (Ed.6): H04N 5/44, 5/445

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2208981 A (RCA)	1,7
A	US 5528316 (SAMSUNG)	"

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